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# ASSISTANCE OR DEPENDENCE: A SYSTEMATIC REVIEW OF AI USE IN EFL LEARNING

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**Abstract:** The growing integration of Artificial Intelligence (AI) into English as a Foreign Language (EFL) learning has created new opportunities for language learning. This systematic review examines how AI use influences learner engagement and cognitive dependence in EFL learning. A qualitative evidence synthesis using a thematic synthesis approach was conducted on studies published between 2023 and 2026. Using predefined inclusion and exclusion criteria, alongside the screening and selection process of the PRISMA framework, 15 studies were included in the synthesis and analyzed from a total of 52 works identified from Scopus, Web of Science, ScienceDirect (Elsevier), SpringerLink Taylor & Francis Online, ERIC (Education Resources Information Center), arXiv, and Google Scholar. Studies were excluded if they (1) were duplicate records; (2) focused on the application of AI in fields other than language learning; (3) addressed non-language subjects in which English functioned as a medium of instruction rather than the primary object of learning; (4) investigated languages other than English; or (5) did not examine AI or digital tools as learning-support mechanisms. The findings indicate that AI tools can facilitate learner engagement through accessible, immediate, and personalized support; however, excessive use of AI may contribute to cognitive dependence by reducing learners' engagement in independent thinking, problem-solving, and language-related decision-making. Emotional dependence also emerged as an additional concern across the reviewed studies. These findings highlight the need to reconceptualize AI literacy in EFL education beyond technical proficiency and emphasize learner autonomy, critical engagement, and the retention of cognitive responsibility when interacting with AI tools.

**Keywords:** *Artificial intelligence; AI dependence; EFL learning: AI literacy; learner autonomy*

## INTRODUCTION

The use of AI has moved from an era where skepticism was the predominant reaction to an era where AI is celebrated and relied upon. At first, AI was used with caution when it was used at all. It was involved in scientific research, but in its fourth cycle, AI has developed to be able to assist us in all matters of our lives (Jaakkola et al., 2019).

Despite the vast applications of AI, this paper focuses on AI use in education, and in particular, we are interested in AI use in foreign language learning. Due to its suggested helpful abilities such as providing instant feedback and exercises, offering constant and easy exposure to the target language, opportunities to learn at one's own pace, AI has become widely accepted and even adopted in the teaching and learning practices of many teachers and learners (Al-Raimi et al., 2024). These researchers also highlighted that whether AI was used by the teachers or by the students, the goal was the same: to develop the target language skills of the students.

The current review takes particular interest in AI and EFL education for the predictions that were constructed about AI and its potential. AI in education in general is not a new concept; the applications of AI in different learning subjects have been of interest to researchers for a long time. This claim is supported by Hwang et al. (2020), who expressed that the rapid advancements in the field of AI and its applications in education have succeeded in attracting the attention of researchers from both fields. Jiang (2022) also discussed the importance of AI in education, especially in EFL education. With the creation of automatic evaluation systems, neural translation tools, AI agents, AI tutors, and AI chatbots, learning a foreign language has become an AI-supported task. Predictions established by some researchers

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(Hwang et al., 2020; Jiang, 2022; Kundu & Bej, 2025) have been exceeded and surpassed, showing the rapid advancements of AI. Therefore, it is necessary to keep up with every update that concerns this timely matter of AI and its applications in EFL education.

AI tools offer a type of support to EFL students that is convenient and easy to access. In the work of Dizon (2017), an AI virtual assistant such as Alexa showed potential to enhance language learning. Although in this study the tool use was structured, this tool offered a type of assistance that language teachers could not. It is an accessible type of support. In education, a teacher is with the students only during the length of the session. As extra support, teachers might reply to students' concerns or questions via email. However, they are not available to students around the clock, unlike the AI tool. Aside from access and 24/7 availability, anxiety, or in this case, alleviated anxiety, is another concept that AI tools offer. According to Bao (2019), students expressed that they feel less anxiety practicing language with AI chatbots. On the contrary, pressure and anxiety are synonyms for public practice of language; the act of practicing either pronunciation or other aspects of language in class with a teacher and classmates may create pressure for some students. That is why some students prefer to practice language with AI chatbots where the risk is low. There is no one who would scold them or retain what they deem as 'embarrassing' moments.

However, not all researchers evaluate the applications of AI tools in language learning to be positive. El Shazly (2021) argued that the use of AI tools to help reduce speaking anxiety and performance anxiety did not demonstrate any positive results. The sample still reported high levels on the anxiety test during the pre- and post-intervention surveys. The researcher argued that a variety of elements could have affected this experiment, such as the environment and the culture. Khoso et al. (2025) also highlighted the concept of dependence. In their work, the sample started demonstrating dependence on AI tools in language learning environments. This dependence was associated with emotional factors such as fear of missing out. As noted above, AI has become widely adopted by teachers and by students; therefore, for the minority group of students who observe that they are not part of this new era, they might become anxious. They might think that they are missing a learning opportunity that might not repeat itself.

Another concept to discuss in AI use in EFL settings is the output and its credibility. Pitts et al. (2025) raised the question of this matter. They argued that students have started to believe that the normalization of AI use has led students to believe everything produced by these tools. These researchers claimed that this strong trust in AI agents has created a sense of comfort that resulted in students disregarding their critical thinking when adopting output from AI. These claims may only apply to the sample examined in the work of Pitts et al. (2025); however, the results remain relevant because this is a phenomenon that was observed in our own classes as well. Students in our classes seem to accept AI output at face value without first investigating its credibility. However, these observations and the results of Pitts et al. (2025) are not strong evidence to generalize this claim to all EFL students yet.

The work of Al Amin and Mahjabeen (2025) highlighted the fact that students in an EFL context have started to rely on AI tools to enhance their written language. For example, if students need to construct sentences in the present perfect tense, they may simply ask ChatGPT to provide the sentences. This type of assistance can help the students complete their assignments and, therefore, meet their target learning outcomes. However, this approach to AI use leads to less cognitive engagement of the student with the task. This is because it allows the AI tool to go through the cognitive process to construct the needed output instead of the students themselves.


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Through the previously mentioned stances, it is to be observed that AI can be approached through two different perspectives: a positive one where AI is used as a tool for assistance, and a negative one where AI is suggested to cause issues of dependence. It is for these two inherently different perspectives that this review was constructed. Previous systematic reviews such as Al-Raimi et al. (2024); Eckhardt et al. (2024); Li and Zhao (2025); Xing and Saeed (2025); Zhai and Wibowo (2023) focused generally on AI and its applications; as for AI reliance, it was discussed in the work of Eckhardt et al. (2024). However, it did not focus on the EFL context. Therefore, the current review aims to be a comprehensive review that highlights studies from a recent time frame to address the issue of AI in EFL education in an adequate and up-to-date manner.

**Research Questions**

The research questions adopted in the current work were developed through the analysis of the works that included the variables in question, and they are as follows:

1. RQ1: To what extent does the use of AI-based tools influence learners' engagement?
2. RQ2: What forms of cognitive dependence emerge among foreign language learners who rely heavily on AI tools?

## METHODS

**Research Design**

This work follows a qualitative evidence synthesis using a thematic synthesis approach to examine literature about the use of AI (Artificial Intelligence) in EFL (English as a Foreign Language) learning contexts. This work focuses on the concepts previously discussed in the introduction, which are learner engagement, cognitive engagement, and the potential reliance on AI language learning tools. To ensure transparency and methodological rigor, this systematic literature review followed the guidelines of the PRISMA 2020 framework (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). The PRISMA framework provides a structured procedure for identifying, screening, and selecting relevant studies while minimizing selection bias. The study selection process was conducted in four main stages: identification, screening, eligibility assessment, and inclusion.

For the analysis of the selected literature, a thematic analysis approach was used. The use of this approach was intentional and appropriate given the types of works selected. Not all of the included literature consists of empirical studies, nor did they use a homogeneous approach. Some works relied on experimental, quasi-experimental, and mixed methods research; others were systematic reviews, with the exception of one meta-analysis study. Accordingly, this work thematically synthesizes heterogeneous evidence.

The heterogeneity of the works selected was intentional as well. This diversity was intended to create a holistic perspective on the use of AI in English language learning settings. Additionally, it is to note that the diversity of the literature was also considered during the quality appraisal, data extraction and synthesis stages. This distinction allowed the current work to retrieve data from different sources, yet it maintained the variability across the methodologies used in the selected literature.

**Inclusion and Exclusion Criteria**

For the inclusion criteria, studies were included in the systematic review if they met the following criteria. First, they had to focus on artificial intelligence in education, particularly within EFL or English language learning contexts. Second, they had to examine EFL students or educational settings that concern English language learning. What was important is that the students should not have had English as a native language. Third, the studies needed to examine the use of AI tools for learning purposes, such as ChatGPT, chatbots, AI tutors, vocabulary-learning assistants, or other AI tools that could be used for language enhancement or development. Fourth, the studies had to be


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published within the selected time frame, which is from 2023 to 2026. The selected time frame (2023–2026) was chosen to capture the most recent developments following the rapid expansion of generative AI tools such as ChatGPT. Finally, the literature needed to be available in full-text format and written in English.

As for the exclusion criteria, Studies were excluded if they (1) were duplicate records published in different databases or on different platforms. (2) The studies were removed if they did not focus on EFL students in terms of language learning and language development. For example, if the study used a sample of EFL students but focused on attitudes about AI, they were not included. (3) The studies were excluded if they examined the use of AI in non-language modules or subjects. (4) Studies were not selected if they focused on languages other than English. (5) The studies were disregarded if they were not available in full text. (6) If the works were published in a time frame outside of the previously specified period, they were not selected. (7) The works were also excluded if the entirety of the text was not written originally in English. This condition was considered to avoid the issue of mistranslation or failing to find equivalents to culture-specific linguistic items.

**Search Strategy and Identification Process**

During the identification stage, relevant studies were retrieved from major academic databases and academic search platforms such as Springer, Google Scholar, Scopus, Web of Science, and arXiv. These platforms offered reliable sources that enabled the identification of relevant literature. The works identified on these platforms focused on EFL education, English language learning, learner engagement, AI use, and AI reliance. These sources have different academic criteria for submission and different indexation metrics. Therefore, the use of indexed, scholarly, and repository research platforms helped in the diversification of literature.

The search strategy relied on the use of combinations of keywords related to the main concepts of this review. These keywords included Artificial intelligence, AI use in language classrooms, Learners' dependence on AI, and AI in English as a Foreign Language (EFL) contexts. AND was used as the Boolean operator for the current work. It was used to combine keywords such as AI and English language learning. The different combinations between the Boolean operator and the keywords facilitated the search and identification of relevant literature.

The search strategy focused as well on articles published within a defined time frame of three years to ensure the inclusion of recent and relevant research addressing AI integration in language education. This process resulted in the identification of 52 records. In the screening stage, duplicate records were identified and removed; titles and abstracts were examined to determine whether the duplicates were true duplicates or whether there were just similarities in the titles. Thus, nine duplicate records were removed. Additionally, three studies written in languages other than English were excluded to ensure consistency in analysis and interpretation. These studies were initially selected because they met the inclusion criteria. However, after further examination and screening of the full articles, they appeared to be written in a language other than English and then translated into English. Furthermore, four studies focusing on native speakers of English and their use of artificial intelligence were excluded because they did not correspond to the target population of EFL learners. Studies that did not address artificial intelligence in EFL educational contexts or were unrelated to language learning were excluded at this stage.

The eligibility stage involved a full-text review of the remaining studies. Articles were assessed based on predefined inclusion and exclusion criteria to determine their suitability for the review. In this stage, twenty-one studies were excluded.

The final inclusion stage resulted in

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the selection of studies that directly addressed the issue of students' use of artificial tools to complete language-related assignments. In this step, 15 studies met all eligibility criteria and were retained for inclusion in the final analysis. These studies formed the analytical corpus for the present review and were synthesized to identify emerging themes, methodological trends, and research gaps. Following the PRISMA stages of identification, screening, eligibility, and inclusion, the following numbers arise. An initial 52 records were identified; nine duplicates were removed; 43 records were screened; 40 were retrieved; 36 were assessed for eligibility; after that, 21 records were excluded for time relevance, language relevance, or topic relevance. Ultimately, 15 records were retained for analysis as they met all eligibility criteria. Please find the PRISMA 2020 flow diagram as Appendix A in the appendices section.

**Characteristics of the Included Literature**

The selected studies included empirical qualitative, quantitative, mixed-methods, experimental, and quasi-experimental research, as well as systematic reviews and a meta-analysis. Starting with the empirical studies, 10 studies examined different concepts such as AI-supported EFL learning, AI use and communication skills, writing, vocabulary learning, language skills, learner autonomy, learning performance, and learner engagement. Four studies in the final corpus were systematic reviews that addressed the issue of AI-supported English language learning. The remaining study was a meta-analysis that investigated the effects of AI use on learning, performance, and higher-order thinking skills.

The methodological approaches varied across the selected corpus. Experimental and quasi-experimental designs were particularly prominent, alongside systematic reviews, meta-analyses, mixed-methods studies, and qualitative investigations. This methodological diversity demonstrates the multidimensional nature of the current inquiry into Artificial Intelligence-assisted language learning.

The selected corpus displays a clear focus on ChatGPT as an AI tool for AI-supported learning. Other AI tools such as AI chatbots were also mentioned in relation to vocabulary learning assistance. However, ChatGPT was the dominant AI tool in the literature. Its applications were discussed for writing, speaking, communication, and higher-order thinking skills.

Another characteristic to highlight is the participants in the selected studies. All of the participants were either EFL or ESL learners; none of them were native speakers of the English language. This was a very important condition to adhere to in the selection process. Given that this review aims to highlight the potential outcomes –either positive, neutral, or negative- of AI use in language learning, the learners should not be native speakers of the target language to observe real possible effects of AI use in an English language learning context. It is to be noted that the current work focuses on an EFL context but includes two studies to be precise with ESL samples (Lo et al., 2024; Xing & Saeed, 2025). Concurrently, those two studies also refer to their samples as EFL learners. In the case of the samples of Lo et al. (2024) and Xing and Saeed (2025), English is both a second language and a foreign language. That is why the current review mainly uses the context of EFL since it applies to all studies included in the final corpus.

To provide a clear overview of the studies included in the final analytical corpus, Appendix B in the appendices section summarizes the main characteristics of the selected articles, including the authors' names, publication year, the AI tool used, participants, methodology, and the database. Presenting these features supports transparency in the selection process and facilitates comparison across studies included in the systematic review.

**Quality Appraisal**

The methodological quality of the selected records was assessed according to the type of methodology used. Since the final corpus consisted of diverse research designs


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and methodologies, rather than applying a single appraisal criterion to all 15 studies, empirical studies and secondary research syntheses were evaluated differently in light of their individual methodological features.
The ten empirical studies were evaluated following the criteria of the Mixed Methods Appraisal Tool (MMAT). This tool offers specific and different criteria for the assessment of qualitative, quantitative, and mixed-methods research. Consequently, for each empirical study, the appropriate MMAT criteria were selected and applied depending on its design.

The results of the MMAT indicated that the empirical studies that were selected for the corpus satisfied the MMAT screening questions. This means that the research questions of the selected works were clear and were addressed adequately from the data collected. For design-specific MMAT criteria, 34 (68%) out of 50 were satisfied, 7 (14%) of the criteria were not met, and 9 (18%) could not be determined from the information reported. For the strengths observed, the qualitative and the mixed methods approaches showed statistical significance. However, the quantitative approach created limitations that were observed in relation to participants' representativeness and control of variables. These limitations were taken into consideration during the thematic synthesis.

The four systematic reviews and the meta-analysis were treated as secondary syntheses of evidence. They were assessed separately using the Joanna Briggs Institute (JBI) (2017) Critical Appraisal Checklist for Systematic Reviews and Research Syntheses. The review-level appraisal criteria focused on the clarity of the review's objectives, the appropriateness of the eligibility criteria, the appropriateness of the search strategy, the identification, evaluation, and data extraction processes, the methods used to synthesize the findings, and finally the attention given to the limitations and possible sources of bias.

The JBI score for the reviews ranged from 63% to 90.9%. Starting with the highest score, the work of Xing and Saeed (2025) alongside the work of Wang and Fan (2025) both received positive judgments for 10 of the 11 JBI criteria with a percentage of 90.9%. Lo et al. (2024), in addition to Peña-Acuña and Durão (2024), both received positive judgments for 8 of the 11 criteria with a percentage of 72.7%. Finally, Teng (2024) received positive judgments for 7 of the 11 criteria with a percentage of 63.6%. Although this score was above average, the work was graded at this percentage because several criteria either lacked clarity or were insufficiently reported. Regarding the strengths of these works, the objectives stated in the reviews were generally clear; the inclusion and exclusion criteria were appropriate and sound; they adopted identifiable search strategies and appropriate evidence synthesis. Regarding the limitations, there was a concern with the quality appraisal tool and its procedures since it was found to lack formal and appropriate steps and reports.

The overall assessment of the selected corpus displays that the evidence is heterogeneous. This allowed us to evaluate and interpret the results of the works according to their own methodologies. Rather than assigning a single score to the entire corpus. Accordingly, the strengths and limitations of each category of work were highlighted.

It is to be noted that the quality appraisal was not conducted for the purpose of excluding any of the 15 studies from the final set since they met all of the inclusion criteria. On the contrary, this step was conducted to identify, highlight, and contextualize the methodological strengths and limitations among the selected heterogeneous evidence. Furthermore, this step was done to allow for a more cautious interpretation of the results. The methodological weaknesses detected during the appraisal were taken into account when carrying out the synthesis rather than serving as an automatic reason for excluding the studies. This approach was especially important since the current review had deliberately included studies that relied on

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different research designs and methodologies.

**Data Extraction**

After the selection and appraisal stages, the next step was to determine the corpus's relevant information in relation to the current study. This stage followed two steps. First, the information that was extracted consisted of the authors' names, the year of publication, the methodology used, the sample, and the AI tool or technology that was investigated. Second, the extraction process examined how the findings of each study could provide answers or clarification regarding the two research questions of the current study. The records that provided evidence on participation, interaction, motivation, confidence, learning activities, or engagement with AI-supported tasks were examined in relation to the first research question. The findings of the records that dealt with reliance on AI-generated responses, reduced independent effort, delegation of learning tasks, learner autonomy, higher-order thinking, and independent decision-making were considered for the second research question.

**Data Analysis and Thematic Synthesis**

The findings from each selected work were first examined and then grouped in accordance with the main aims and research questions of the current review. Descriptive codes were created in relation to the concepts that kept recurring across various studies' findings. The codes comprised AI-supported engagement, personalized assistance, AI-assistance, language-learning support, AI language learning, learner autonomy, higher-order thinking, reliance on AI-generated responses, reduced independent effort, delegation of learning tasks, and learner dependence.

The codes were then compared across various selected studies and divided into wider themes. These themes were constructed through a recursive process in which the findings from one study were compared with the findings from other studies in the corpus. During this process, both the similarities and the differences between the studies were taken into account, with special attention being paid to those findings which could make a direct contribution to answering one or both of the two research questions.

In relation to the first research question, the synthesis examined the ways in which AI or AI-assisted tools affected learners' engagement in language-learning activities. This involved evidence relating to interaction, participation, motivation, confidence, personalized support, and engagement with the academic learning tasks.

For the second research question, the synthesis concentrated on the different forms of cognitive dependence that could be identified in the reviewed literature. Cognitive dependence was examined in relation to patterns that involved learners' reliance on assistance provided by AI, a decrease in independent thinking, a reduction in cognitive effort, the delegation of language-related tasks, dependence on automated feedback or answers, and a decrease in learner autonomy.

It is worth noting that this review did not work under the assumption that all of the 15 studies had directly measured cognitive dependence. Instead, cognitive dependence was regarded as an analytical theme that could be derived from the overall evidence relating to AI reliance, learner autonomy, higher-order thinking, independent decision-making, and the delegation of learning-related tasks to AI. This distinction was respected throughout the synthesis. The current review also made a distinction during examination and synthesis between evidence from primary empirical research and evidence reported in systematic reviews and the meta-analyses included in the corpus.

## RESULTS AND DISCUSSION

This work relied on two research questions. The results will be presented with regard to the questions. The first research question sought the influence of AI-based tools on learners' engagement. This research question had three themes that emerged during the


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analysis and provided clarity. Before discussing the reliance on or the heavy use of AI tools, the first theme, which is tool utility, discusses the need to understand why AI is very popular with students. A simple answer is that AI tools provide a discreet solution for students who are lacking (Lo et al., 2024).

**Tool Utility and Students' Information Processing**

The lack could be in terms of mental abilities or speed of information processing. Some students do not understand the lessons, so they may refer to AI to understand better. As educators and teachers ourselves, we understand that some students are shy by nature. Regardless of the support offered to them, they might shy away from asking questions in the classroom. Those students now have a free tutor that is available with the click of a button. According to Lo et al. (2024), students might refer to AI to understand or practice pieces of knowledge that were presented to them in the classroom but were not processed well. AI tutors provide feedback on language learning, yet they do not have the ability to judge or form a personal opinion on their users. These features may help make students at ease (Lo et al., 2024).

**Tool Utility and Students' Motivation**

Another form of lack is the lack of motivation. Some students may not have the motivation to complete their assignments, yet they want to achieve good grades and preserve their social image. AI comes in handy in these situations since one of the goals of why AI was created is to solve problems. Be it mathematical equations or language homework, AI is capable of solving all types of assignments. In terms of foreign language learning contexts, students are usually presented with assignments to complete at home that are usually related to language structure, such as grammar exercises, or other language skills such as writing exercises. As observed in the findings of Pipia and Gurgenishvili (2025), students in these cases use AI to complete their writing assignments and essays and generate answers for their grammar exercises. Students also use AI to summarize books, novels, or other assigned reading materials.

**Cognitive Engagement**

Unlike traditional means of language learning, the reviewed literature suggests that AI-powered tools have succeeded in fostering a stronger engagement among students (Moussa & Belhiah, 2024). AI tools use various mechanisms such as gamification, personalized learning, and bite-sized content to help keep the attention of their users. In the classroom, the teacher can ask questions or distribute quizzes to check if the students are following. However, there is no guarantee that the students actually follow the lesson. Alternatively, when using AI tools in language learning, you cannot go to the next 'level' if you do not answer correctly based on what has been presented to you. AI tools and platforms have excelled in using creative ways that can possibly keep the students engaged and that continuously test their knowledge (Polyzi & Moussiades, 2023). Another factor to mention regarding engagement is competitiveness and social learning. Sometimes, AI language learning platforms display the act of language learning as a game where the user/learner has to score points and beat other users/learners. The competitive nature of students can also keep them engaged in the language learning process (Polyzi & Moussiades, 2023). This practice could be done while keeping the identity of the learner hidden, thus emphasizing their feelings of security and anonymity while also eliminating any reasons for embarrassment or shyness when losing.

**Metacognitive Awareness**

This theme explores the idea of the learners being active and in charge of their learning journey (Moussa & Belhiah, 2024). This theme could be related to the previous themes in the way that when learners recognize weaknesses in their knowledge, retention, or engagement, they refer to AI. While discussing many variables that affect the learning process of students, sometimes we might steer away from the idea that learners themselves play the biggest role in this

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learning process. AI might play an important role in the learners' self-efficacy. Learners gain confidence in their abilities with the use of AI (Moussa & Belhiah, 2024). They deem tasks as more tangible and feasible. They started setting new limits and boundaries for themselves with the help of AI (Moussa & Belhiah, 2024).

All of these themes help us understand why students use AI. Furthermore, these themes provide insight into the influence of AI on students' engagement. Students may become more engaged in language learning due to unique features that AI tools offer, which cannot be present in a traditional classroom (Moussa & Belhiah, 2024; Polyzi & Moussiades, 2023). The reviewed studies suggest that AI tools in EFL learning might help students overcome their weaknesses by improving their self-efficacy and self-awareness (Moussa & Belhiah, 2024). The studies related to the themes provided highlighted the fact that AI, in one way or another, influences the engagement of students in language learning (Lo et al., 2024; Moussa & Belhiah, 2024; Polyzi & Moussiades, 2023).

After presenting the possible influence of AI on students' learning, it was necessary to see if this influence crosses the line from assistance to reliance. With the many positive outcomes of AI, it is only plausible that students might overuse it (Teng, 2025; Xing & Saeed, 2025; Pipia & Gurgenishvili, 2025). The second research question inquires about the cognitive dependence emergence among foreign language learners who rely heavily on AI tools. The answer to this research question will be presented in the form of two themes.

**Cognitive Dependence**

The concept of self-efficacy presented in the previous research question presents the positive side of AI use (Moussa & Belhiah, 2024). Students may feel confident and secure when using AI. Xiao and Zhi (2023) discussed that learners can use ChatGPT as a learning partner and benefit from immediate and personalized assistance, while also demonstrating the importance of critical judgment when evaluating AI-generated output. This suggests that AI assistance does not necessarily constitute dependence; rather, the concern emerges when assistance begins to replace learners' own cognitive involvement and evaluative judgment. This means that this assistance may raise the concern of dependence on AI when writing, editing, or solving language exercises; students may become hesitant when AI is absent. They may start doubting their own words and structures. They may start to think that they need to oversee their work with a more knowledgeable other, who is, in this case, AI. These concerns are consistent with the literature identifying dependence, reliance, and the possible reduction of independent critical engagement as challenges associated with extensive AI use in EFL learning (Teng, 2025; Xing & Saeed, 2025; Pipia & Gurgenishvili, 2025). Therefore, it is worth noting that the theme of cognitive dependence is an emerging theme from the various studies reviewed rather than an interpretive theme of their findings.

**Emotional Dependence**

In regard to the previous theme, another emerging theme to address is emotional dependence. The reviewed literature does not address emotional engagement or emotional dependence explicitly. In this regard, the current review raises the possibility of an affective dimension to learners' reliance on AI and its applications in EFL education. This theme is an extension of concepts of reliance discussed in the literature. Xiao and Zhi (2023), for example, found that learners perceived ChatGPT as a valuable learning partner and highlighted its personalized assistance and immediate feedback. Students may feel anxiety or stress when they are not using AI, as they value its presence in their language-learning journey. We must not forget that learning a new language is not easy; some students may struggle more than others. In those cases, students may refer to AI not only as a language tutor but also as a multi-dimensional language assistant. This theme brings about an interesting but risky perspective to this review. Emotional


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dependence is a concept that should be investigated further in future studies within the field of EFL education. However, it is important to take into consideration that the current review does not investigate this theme, but merely presents it as an emerging area for investigation.

These two themes shed light on the possible improper use of AI and the consequences that may arise from such use. Although AI tools are capable of helping learners reach great achievements, they are also to be used with moderation (Teng, 2025; Xing & Saeed, 2025). The themes explain how the heavy use of AI within language learners may create a one-sided dependency relationship. The user/learner may start to seek language-processing systems or AI tools more often than before. The separation from those AI tools may also create negative emotions of anxiety and stress.

The findings of the current work suggest that AI can be viewed from two different perspectives, a positive perspective and a negative one, but at the same time, it acknowledges that these two opposite perspectives are part of a continuum. Lee et al. (2025) stated that education has witnessed great development with the rise of AI. It has generally proven to enhance students' experiences in foreign language learning, especially in English. For example, students no longer need to follow the pace of other learners like in traditional classes. They can have their own tailored experience of language learning. It is worth noting that the use of the term 'generally' was intentional, since it reflects the continuum of AI use. Although AI tools can provide certain opportunities such as knowledge access, personalized assistance, instant feedback, and a tailored learning experience, the same opportunities may lead to reliance and dependence.

Regarding opportunities for access, personalization, and guided activities, GenAI has simplified many tasks. Ng et al. (2024) reported that the use of AI in language learning generated excitement and motivation when conducted in the classroom. In addition, when used in guided activities at home, the use of AI fostered positive attitudes in students towards language learning, the abundance of knowledge has seemed to help tremendously the students in their learning. However, this availability of abundance may create individuals who lack motivation, creativity and even critical thinking.

The findings of the present study align with a growing body of work that suggests that artificial intelligence tools, and specifically ChatGPT, are progressively influencing the field of education and language learning. This is also the case for learning English as a Foreign Language (EFL) in the Moroccan context. Through the literature reviewed, it was noted that AI-assisted learning environments where students use AI platforms or applications are consistently associated with improvements in learners' engagement, learner autonomy, and perceptions of language learning support. For instance, systematic reviews by Lo et al. (2024), Teng (2024), and Peña-Acuña and Durão (2024) highlight the expanding role of ChatGPT as both a linguistic support tool and a framework for writing development. This was observed especially in contexts where learners require immediate feedback and structured assistance. These findings reinforce the argument that AI tools function not only as supplementary technologies but also as emerging mediators of the writing process itself.

This also highlights the fact that the role of AI tools is what governs the educational value of AI, not just its existence. When AI takes the role of a guide or a facilitator of knowledge, learners might use it to generate feedback, correct grammatical structures, and explain difficult concepts. In terms of writing, for example, learners would use ChatGPT to correct the structures they have, or discover other creative outcomes from their starting points. Learning from the perspective of these studies is a hybrid process between the learner and the AI tool. However, the question of whether this AI use and this hybrid relationship is just assistance

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or can it develop into dependence starts to rise. Considering the continuum of AI use and the two previously discussed 'extremes', boundaries around what should be considered just assistance and what should be considered as reliance start to become blurry.

Another stream of ideas that was highlighted through multiple studies is the positive impact of AI tools on learners' writing proficiency and communication skills. It is through this path of reasoning that we find two opposing extremes in terms of AI use in language learning and education in general. Experimental and quasi-experimental research conducted by Kim et al. (2023), Pipia and Gurgenishvili (2025), and Alangari (2025) showcases that learners who engaged with AI-supported writing environments showed measurable improvements in language accuracy, vocabulary use, and overall writing quality. These improvements can be attributed to the interactive feedback mechanisms provided by AI systems. These systems allow learners to revise texts iteratively and develop awareness of linguistic structures. The role of these AI tools here is not to generate ideas or structures but to revise them in an ethical manner to provide authentic and unbiased feedback. This is, of course, in close to ideal conditions where the prompts used also encourage this type of feedback. Furthermore, and following the same arguments, Yang et al. (2025) emphasize that corpus-informed interactions with AI tools contribute to proficiency-sensitive writing enhancement, suggesting that AI-generated feedback may adapt to learners' developmental stages. Taken together, these findings support the interpretation that AI tools can act as adaptive scaffolding mechanisms that enhance writing performance through continuous interaction. Therefore, the advantages of AI appear to be the strongest when the technology is used to support revision and reflection through meaningful interaction rather than being used to replace the cognitive work required from the learner.

However, continuing with this interplay of extremes, arguments from Duhaylungsod and Chavez (2023) highlight the concept of over-reliance that leads to convenience. According to Duhaylungsod and Chavez (2023), the comfort that is provided by a lack of mental processes and that is skipped over and even substituted by the dependence of college students on AI chatbots resulted in a change of perspectives. The students started reconsidering their roles in the completion of tasks assigned to them. At first, they were worried about the creativity and freedom of expression, but later they started to question if they should be engaged in the task completion to begin with. The students started relying on the chatbots to complete their tasks instead of doing them themselves or using AI only to assist them. This may explain the issue of motivation that was mentioned before. When students observe that a task is completed without their intervention, they may find it difficult to spend effort to complete a task that could be completed otherwise by an AI agent. The contrast between these findings is important. AI use in itself does not automatically confirm engagement or over-reliance. It is the distinction between whether the AI tool was used to facilitate the language learning process and whether it was used to substitute the learner's cognitive effort. AI can function as a facilitator when it provides feedback, helps with revision, or even quizzes the learner on the language skill they are trying to learn. However, AI can replace the learner's own cognitive processes in foreign language learning when it starts completing the learner's assignments. In this case, the AI use leans more towards dependence.

From another perspective, Kim et al. (2023) suggest that the students' proficiency in the foreign language is the factor that determines the level of their engagement in the tasks to be completed and their dependence on the AI tool. In their study, they observed that students were assigned to write in English, and they used AI to help them complete the task. However, since the students were not fully fluent in the English language, they could not judge and evaluate

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the output of the AI tool. These findings help us recognize that the learners' language proficiency is a key condition that may move the stance of AI use on the continuum. This means that depending on language proficiency, AI use can lean toward either scaffolding or cognitive dependence. This can also link motivation to how we judge AI use. Learners' motivation may contribute to their involvement and the role they may assign to the AI tool in language tasks and in the process of foreign language learning.

The implications of AI have extended to language skills beyond writing or writing-related issues and perspectives; AI tools may influence broader skills and competencies such as communicative competency as well. According to Kim et al. (2021), AI chatbot interaction contributes to improvements in learners' communication skills. This could be observed through the use of AI language tutors that develop students' communicative competence through engaging conversations. In this regard, Xing and Saeed (2025) also highlighted similar benefits in their study in relation to the development of speaking across ESL/EFL contexts. These findings suggest that AI technologies may function as multimodal language learning environments or tools that are capable of supporting integrated skill development rather than isolated skills such as writing. This suggests that the distinction between AI use as assistance or facilitator and AI use for delegation of cognitive tasks expands across different language skills, as it is not limited only to writing.

On the issue of over-reliance, Abd-alrazaq et al. (2023) state that AI, and specifically GenAI, which could manifest in chatbots such as ChatGPT that students use, often provides false information. Users, especially students, may not be able to notice the difference between credible information and false information because these tools have enhanced the way in which they present information to their users. The tools present the answers to the questions they are presented with in a well-structured manner. A user who is not interested in complicated procedures or one who has not developed their critical thinking skills would overlook the fact that they need to check the credibility of such information. In this regard, Ng et al. (2024) call for AI literacy. Because of the developments in the field, we have moved past digital literacy, as there is now a need for AI literacy. The students observed, and the samples considered in the studies that took part in this paper, did not have courses or structured lessons on AI literacy, as it was not reported in the literature. They have been using AI and adapting it into their routines while functioning on prior knowledge. This could also help explain patterns of over-reliance and cognitive dependence while also highlighting possible issues of emotional dependence. Therefore, there is a need for courses, workshops, or even training that would clarify the boundaries of ethical use. The individuals concerned have not been equipped with the necessary knowledge to deal with this new cycle and generation of AI. It can be concluded that the distinction between AI use and AI reliance or even over-reliance may be influenced by the learner's AI literacy skills.

An important theoretical implication that emerges from the discussion that should be addressed is the role of human interaction in language learning, as raised by Karamuk (2025). In language learning, human interaction is very needed to ensure a human touch to the educational process. An AI agent will not be able to foster the emotional and psychological support that a human teacher would. Sometimes the learners might face some emotional obstacles when learning a new language. AI tools may be able to provide them with a thousand ways to solve the issue, but they will never be able to provide empathy and compassion. Through this perspective, AI is observed to provide the necessary informational help but cannot provide the emotional help that is theorized to be needed. This emerging implication does not support the cognitive dependence stance that some researchers touched upon in the reviewed literature. Therefore, this contrast shows the complex nature of AI use in

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education and particularly in language learning.

It is vital to emphasize that after presenting multiple themes that were concerned with motivation, cognitive engagement, cognitive dependence, the emerging dimension of emotional dependence, and the interplay of extremes supported by various researchers, the terms motivation, engagement, dependence, and reliance were not used interchangeably in the current work. They were discussed as multiple facets of AI use in EFL education. It is also worth noting that despite this work seeming to highlight the two 'extremes' of AI use, the work discussed AI and its applications in education through multiple stances and perspectives of different researchers to reflect a continuum between these two extremes.

AI is not inherently good or bad; previous systematic reviews have also identified the advantages and disadvantages of AI use in education. While some reviews presented the potential of AI in education in terms of facilitating knowledge, providing instant feedback, and communication practice, other reviews discussed the boundaries of use and autonomy versus reliance and dependence. The current review, therefore, extended the discussion by bringing these contrasting concepts within a continuum. Furthermore, the current review aimed to highlight the fact that AI use is not the critical issue; it is the variables that contribute to this use. Thus, the educational consequences of AI use depend on which form of use is adopted. To evaluate whether the observed AI use falls closer to which extreme, if any, multiple variables should be investigated. The AI tool, the context, the learner proficiency, the guidance provided for the tool use, the frequency of use, the purpose of use, and whether the user is equipped with AI literacy skills are all important variables that may help us in assessing where our AI use exists within the complex aforementioned continuum.

## CONCLUSION

This study conducted a systematic review on works related to AI, AI overreliance, engagement, and language learning. The results of this study show that while there are many positive outcomes to the use of AI in language learning and in education in general, such as supporting the students' writing processes and developing their communicative competencies, students can quickly get addicted to the use of AI. Students need to reflect on and analyze all output provided by the AI tools. Thus, there is a strong call for AI literacy. Furthermore, this literacy and this training on how to interact with and ethically use AI tools in education concern both parties in the educational process: teachers and learners. Learners should also learn a new perspective of autonomy where AI use is limited and controlled. Autonomy in this wave of technology is not the lack of need for teachers and peers as facilitators of knowledge or the more knowledgeable others, nor the heavy use of AI tools. Autonomy should be regarded from a new perspective where AI use is governed.

This new form of autonomy will be a difficult shift for some learners at the beginning; however, this process could be done through collaborative efforts with teachers. As the facilitators of the learning process, teachers are encouraged to guide learners toward critical evaluation of AI-generated suggestions and awareness of the ethical guidelines that govern the use of AI in EFL contexts. These steps should also be accompanied by awareness regarding the ethical engagement with writing-support technologies. If students continue to rely on AI tools to complete their assignments and produce academic texts instead of writing them themselves, we find ourselves in a new dilemma where we ponder authorship, originality, integrity, and creative ownership of a text. That is why there is a need to consider such practices, as they may help maintain learner autonomy and strengthen academic writing development while also benefiting from technological support.


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The current trends suggest that AI will never cease to exist; it will only become more integrated into our lives in more subtle ways. The field of AI is still undergoing changes that will never peak since it will always remain dynamic. That is why there will always be a need for studies on how to deal with it and how to manage the students' dependency on it. This study identifies several directions for future research. Longitudinal studies are needed to better understand the long-term effects of sustained interaction with AI-based writing tools on language development and learner independence, and the effect of AI tutors on the overall development of language. Further research should also explore AI-assisted learning practices in underrepresented educational contexts and examine how structured training interventions influence learners' ability to engage critically with AI-generated content and their awareness of ethical concerns about AI use.

Finally, several limitations should be acknowledged. The present study relied primarily on studies published in major academic databases and focused largely on university-level EFL contexts. This approach provides a holistic overview of the trends that surround AI use in EFL contexts. Future work is encouraged to adopt other research approaches and designs to uncover new perspectives on other variables that relate to AI use and reliance in language learning. In addition, variations in research designs across the included studies made direct comparison of engagement outcomes difficult. However, future systematic reviews are encouraged to follow broader datasets and more diverse learner populations that may provide a different understanding of the relationship between AI-assisted writing tools and learner engagement.

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The authors declare that an artificial intelligence (AI) tool was used in the preparation of this manuscript. Specifically, ChatGPT was used for language editing. The manuscript was revised using the AI tool to detect and provide possible corrections for language-related mistakes, such as typographical mistakes. All outputs provided by the AI tool were reviewed, revised, and validated by the authors. The authors take full responsibility for the content of this manuscript.

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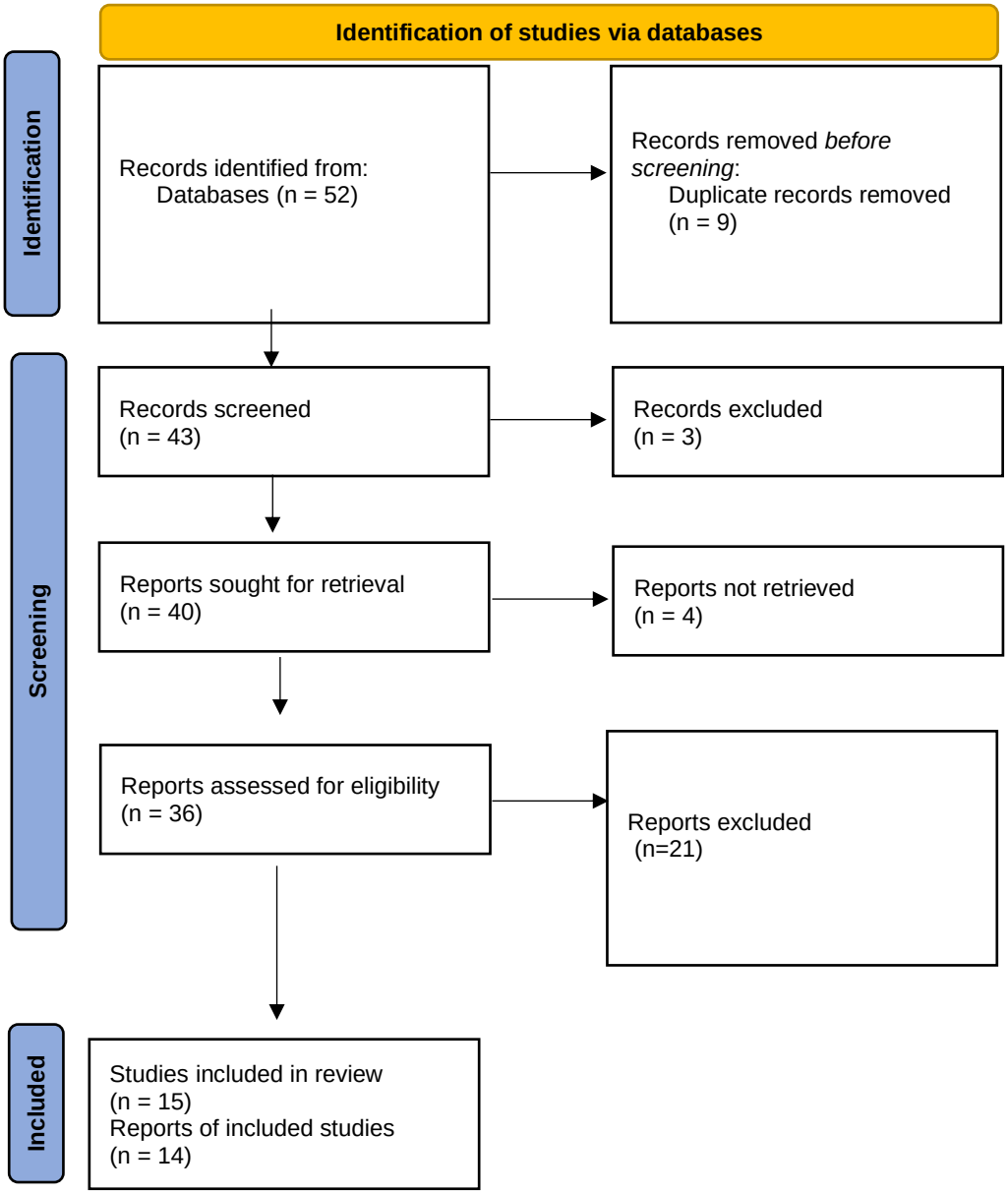
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## APPENDICES

**Appendix A:** The PRISMA 2020 flow diagram





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***Appendix B:*** Summary of included studies

| Author(s) | year | Title of the article | The AI tool | Participants | Methodology | Database |
|---|---|---|---|---|---|---|
| Lo et al. | 2024 | Exploring the application of ChatGPT in ESL/EFL education and related research issues: a systematic review of empirical studies | ChatGPT | EFL students | Systematic review | Springer |
| Xiao & Zhi | 2023 | ChatGPT for EFL: Usage and Perceptions among BA and MA Students | ChatGPT | Female Bachelor (BA) and Master (MA) students | Mixed-methods approach | Scopus |
| Kim et al. | 2023 | Towards explainable AI writing assistants for non-native English speakers | AI chatbots | EFL students | Qualitative | arXiv |
| Han et al. | 2023 | Exploring Student-ChatGPT Dialogue in EFL Writing Education | ChatGPT | EFL students | Experimental research | arXiv |
| Teng. | 2024 | A Systematic Review of ChatGPT for English as a Foreign Language Writing: Opportunities, Challenges, and Recommendations | ChatGPT | EFL students | Systematic review | Scopus |
| Fitria. | 2023 | Artificial intelligence (AI) technology in OpenAI ChatGPT application: A review of ChatGPT in writing English essay | OpenAI | EFL students | Qualitative | Google scholar |
| Polyzi & Moussiades | 2023 | An artificial vocabulary learning assistant | AI tools for vocabulary | EFL students | Experimental design | Springer |
| Moussa & Belhiah | 2024 | Beyond Syntax: Exploring Moroccan Undergraduate EFL Learners' Engagement with AI-Assisted Writing | structured AI training program and AI assisting tools for writing | Undergraduate EFL students | Quasi-experimental research | Scopus |
| Wang & Fan | 2025 | The effect of ChatGPT on students' learning performance, learning perception, and higher-order thinking: insights from a meta-analysis | ChatGPT | EFL students | Meta-analysis | Scopus |
| Alangari | 2025 | The Effect of AI-Assisted Learning on EFL Writing Proficiency: Quasi-Experimental and Cluster Analysis | ChatGPT | High school students | Quasi-experimental research | Scopus |
| Acuña & Durão2 | 2024 | Learning English as a second language with artificial intelligence for prospective teachers: a systematic review | ChatGPT | EFL students | Systematic review | Google scholar |
| Pipia & Gurgenishvili | 2025 | The Impact of ChatGPT on English as a Foreign Language Learners' Writing Skills-An Experimental Study at Georgian Universities | ChatGPT | EFL university students | An Experimental Study | Google scholar |
| Yang et al. | 2025 | Artificial Intelligence in EFL Writing Enhancement: A Study on Chat-bot Feedback and Learner Autonomy | ChatGPT | EFL students proficiency-level students | Web-intersected and corpus-based experimental study | Google scholar |
| Al-Obayd et al. | 2025 | ChatGPT and the development of core language skills: An exploratory study of EFL college students | ChatGPT | EFL college students | An Experimental design | Google scholar |
| Xing & Saeed | 2025 | A Systematic Review on Artificial Intelligence (AI) Technologies in ESL/EFL Speaking Skills | AI technologies | EFL learners | Systematic review | Web of science |

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